

TQM in Higher Education Institutions: The case of HSJ

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Keywords

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The adoption of a Total Quality Management (TQM) Model could improve many of the administrative structures of public services. The means for quality improvement is based on quantitative features. The European Foundation Quality Management (EFQM) model is an important instrument for achieving organizational excellence, which is mainly based on self-assessment, benchmarking and continuous improvement that aims to improve the efficiency and quality of services. The main objective of the proposed study is to demonstrate the importance of adopting a model based on the principles of TQM in the area of Higher Education and particularly the Hellenic School of Judges (HSJ). Primary research data have been collected through interviews of the administrative and educational staff of the HSJ. The measured variables of the TQM elements, Descriptive statistics and correlation analysis have been applied to define the TQM elements mostly used and the results achieved by the HSJ. The contribution of this study lies in the investigation of several interrelationships between some significant variables that exist in HEIs, with the help of EFQM model. By examining thoroughly and understanding those interrelationships, it is acknowledged that is helpful to deploy appropriate tools in the future, in order HE institutions to achieve excellence.

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1. Introduction

1.1. Purpose of the study

The role of TQM in Higher education Institutions has never been clearly understood. Its application in HEIs has become of central concern world-wide, in many different countries, with different higher education systems for a long time. Institutions are increasingly using the instrument of TQM in order to establish how much quality is applied in HEIs. In such a climate, it is essential for HEIs to investigate the value of a quality model such as EFQM in HEIs.

Higher Education Institutes (HEI) is a domain where competency exists in many aspects and excellence is a target (Tasopoulou and Tsiotras, 2017). On the other hand, the severe economic crisis in Greece and the cut-off of HEIs budgets is a reality that has made the achievement of the same goals with less means more prominent. In this direction a new management model should be introduced that will achieve better performance with less resources. Good practices (in UK higher education and their counterparts in the US, for instance) have depicted that Total Quality Management (TQM) in HEIs, when applied, have resulted in providing higher quality services, excellent student performance, decreased costs and client pleasure using less means (Kanji et al., 1999). In literature, the need for TQM for HEIs had been under study long ago (Sherr and Gregory Lozier, 1991) and a generic tendency in the development of quality management was identified, for adopting quality management inceptions and applications in

governing and administration systems of HEIs (Manatos et al., 2015). The latter is currently the trend in Greek HEIs (Belias et al., 2017).

Although EFQM has been studied a lot (Suárez et al., 2017), it is not established in HEI (Osseo - Asare and Longbottom, 2002). This gap in research publication indicates that further investigation is needed to find out the adjustment of TQM inceptions and of the EFQM system in the frame of HEI. It would be very interesting to investigate the implementation of EFQM as a TQM tool in some Greek Higher Education Institutes (HEIs) with diverted special characteristics, like the Hellenic School of Judges, in order to maintain and develop competency and excellence.

The main part of this study is arranged as follows: The first chapter is an introductory one. In the second chapter an extensive literature review is made. The gap in literature is located and the importance to be filled is sustained. In the following section –third- of this research, the methodology research is described. In the fourth chapter, the researcher presents its study findings. Using descriptive statistics and statistical analysis with SPSS the particular objectives are pursued. The results are discussed with the help of tables and statistical tests in order to identify relationships that are presented. Discussion analysis is displayed in the following fifth chapter. In the penultimate chapter conclusions are drawn from this research while in the last seventh section the limitations of this study are contained.

According to Safari et al., 2012 the EFQM excellence model has five identifying factors or enablers and four result types. Many authors such as Martínez-Lorente et al., (2009); Sadeh and Arumugam, (2010); Zade et al., (2011); and Safari et al., (2012) have explored the interrelationships between the two categories of variables of EFQM excellence model, so called “Enablers” and “Results”. The above-mentioned studies have led to fruitful and useful conclusions.

1.2. Research Objectives & Research Hypotheses

The main objectives of this study are:

- To evaluate the operations and the performance of Higher Education Institutes’ services using EFQM excellence model that includes a set of criteria. Those criteria are nine.
- To identify the good practices already in place.
- To identify the issues that need to be improved.
- To evaluate whether the variables so called “enablers” of EFQM model affect positively the variables called “results”.

In order to explore this research objective, five (5) research hypotheses are tested:

H1: The “leadership” enabler affects positively the results variables.

H2: The “strategy” enabler affects positively the results variables.

H3: The “people” enabler affects positively the results variables.

H4: The “partnerships and resources” enabler affects positively the results variables.

H5: The “processes, products & services” enabler affects positively the results variables.

To formulate proposals for the continuous progress of the quality of HEIs’ services according to the axioms of TQM.

2. Literature Review

2.1. Total Quality Management (TQM)

In today’s era of radical scientific and technological developments, of intense and steep socio-economic changes and market demands, businesses and organizations have been led to more efficient forms of government, taking into account the rising demand for quality by their customers in order to appear more competitive on the market. Thus, a new management trend was born, Total Quality Management (TQM), hereafter mentioned as TQM. Moreover, in a time of declining resources because of

the severe economic crisis in Greece, combined with the high demand of higher education to satisfy its stakeholders, the need to provide more quality with less means was created (Rosa et al, 2012). TQMs application in every subject of high education institution has offered a viable solution to that problem.

TQM was initially implemented in the private sector having successful results (Heras, 2006), from which according to Sarrico et al., (2010) many efforts have been made for this to be transferred to higher education systems and institutes, aiming at continuous improvement. This fact has created a *debate of how well TQM can be applicable to Higher Educational Institutions*, by creating three different approaches (Rosa et al., 2012).

First of all, several authors (Massy, 2003; Birnbaum, 2000; Pratasavitskaya and Stensaker, 2010) have declared that quality management principles that came from the private sector had no applicability to HEIs due to the fact that those foundations had basic differences in their formation, characteristics and ethos that made it difficult to implement such a philosophy on them. According to Harvey (1995), every attempt to improve quality through the application of quality management in HEIs failed, because many obstacles appeared during that process. More specifically, due to the fact that the terminology that came from the private sector was completely unknown to the academic society, which was strongly attached to its concepts and principles. TQM application was very difficult in HEIs (Rosa et al., 2012). Birnbaum (2000); Rosa and Amaral (2007); Pratasavitskaya and Stensaker (2010) accused many factors, the most important of which are from on the one hand the existence of: bureaucracy in decision making processes, resistance to everything new, less experience in team work and on the other hand the inexistence: of communication channels, strong leadership and conciliation among TQM, values, traditions and purposes of HEIs.

In contrast, another theory (Rosa, 2003) supported that despite the fact that HEIs were not a private sector, some primary principles that came from it can be implemented, as long as they follow the rules, objectives and strategies of institutions. Similarly, Williams (1993) defined those management principles, some of which were the existence of management procedures, partake of academics, employees and personnel, pleasure of client's needs and wants, all of which improved quality management in HEIs. Being on the same wavelength Harvey (1995), also supported that some of the elements of TQM can be adapted to HEIs such as delegation of responsibility for quality and teamwork. In conclusion we could say that the above theory was basically a mild form of approval to use TQM in HEIs.

Opposing the first approach, the third theory claimed that quality management principles could perfectly be implemented in institutions, where motivated academics and students would have taken part in an improved process, by achieving more aims with less means (Sahney et al., 2004; Campatelli et al., 2011; Cruickshank, 2003). This theory has been examined in several papers (Rosa and Amaral, 2007; Campatelli et al., 2011; Osseo-Asare Jr. and Longbottom, 2002; and Doeleman et al., 2014).

This debate became an obstacle in reaching an agreement about the real meaning of quality and its consequences in higher education. In addition, one of the most significant issues that HEIs are dealing with is that they are multidimensional (Sarrico et al., 2010), due to the fact that HEIs are executing numerous and various missions. HEIs stakeholders have diversified needs and wants related to higher educational issues. This diversity has led to different ways of evaluating higher education, which would reflect the multitude of concerns and ambitions that came together into each HEIs. Thus, various models like EFQM that evaluate Institutions have been developed in order to satisfy the variety of different approaches into a unified scheme (Sarrico et al., 2010). These models are the tools that supply guidance in every HEI, in order to accomplish academic excellence.

A well-organized strategy of TQM in educational institutions can reduce the expenses of quality management improve effectiveness and achieve a higher degree of excellence (Samson & Terziovski,

1999). Most surveys have focused on the results of implementing TQM systems on administrative effectiveness with the help of self-assessment instruments.

At the beginning, HEIs in the United Kingdom (UK) responded very late to the global pressure of enhancing the performance of higher education. Only a small number of HEIs have adopted a TQM tool (Kanji et al., 1999). Later, many HEIs in UK have adopted the certification of quality of the European Foundation for Quality Management (EFQM) award, which was based on self-assessment (Osseo-Asare Jr. and Longbottom, 2002). This model was also deployed by many HEIs in 38 European countries (Rosa and Amaral, 2007).

TQM was established in USA because of the critical situation of the educational system that was facing in the 1980s due to the limited funding and complaints for better education (Kanji et al., 1999). HEIs in USA have adopted the Malcolm Baldrige National Quality Award

(NBNQA) as a diagnostic tool which is also based on self-assessment. (Osseo-Asare Jr. and Longbottom, 2002). Those HEIs that had supported quality management have experienced significant alterations in students' courses and management.

However, there are some critical points that prevent the effective implementation of TQM in HEIs. Those points have to do with the incorrect use of some critical success factors such as leadership, organizational culture and customer. More specifically the lack of team working among administration staff affects negatively the effectiveness of Leadership. The existence of inflexible administration and competition among departments for acquiring resources may downgrade the primary role of organizational culture. Finally, when ambiguity exists in HEIs about who their customers are, then TQM implementation becomes difficult (Srivanci, 2004).

It was difficult perhaps not to be able to come up with a monadic and *unambiguous statement of the exact meaning of TQM* (Gómez, Martínez Costa and Martínez Lorente, 2015) because there was a variety of definitions that attempted to decipher the concept, values and content of the TQM. Looking back on previous contributions (Dale, 2003; Eriksson and Galvare, 2005) the basic perception of experts seemed to state the exact meaning of TQM as a management-driven theory from some guiding inceptions or main ideas that incorporated the style that corporation was anticipated to work, which, when linked efficiently, will reach excellence.

TQM has been explored from a technical or hard perspective (Labovitz et al. 1993; Evans and Lindsay, 1999) emphasizing the value of improving various production methods and operations, setting up working methods through the initialization of well-defined procedures, so as to maximize the quality of products and services supplied to clients which as well has been explored from the social or soft perspective (Tseliou, 2005; Bounds et al., 1994) emphasizing the value of teamwork, leadership, training and employing involvement. These two approaches nowadays are not adopted (Bou-Llusar et al., 2009; Calvo Mora et al., 2014; Dahlgaard & Dahlgaard - Park, 2006; Noe et al., 2015; Armstrong and Kotler 2015) because they don't analyze relationships separately but as a whole in a more holistic form. Thus, the social and technical aspects of TQM are related and collaborate with each other continuously. This holistic perspective also reaches the awaiting outcomes of a TQM initiative, as there must be an equilibrium among the concerns of the stakeholders when the company determines TQM applications (Fissher and Nijhof, 2005). Despite the fact that there is no monadic definition of TQM, *many relative characteristics* can be discovered in many of the procedures that arise from it (Harvey, 1995).

According to Oakland, (1994) the main features of TQM were dealing with the determination of customer-supplier relationships, establishment of a management process system, change of mentality of the organization into a TQM mentality. Improvement of communications throughout the organization and commitment to quality in order to achieve its main objectives which were complete customer satisfaction of the organization over time, long-term complete satisfaction of employees in the effort of

customer satisfaction and development of a permanent mindset for the employees of the company. The effort to achieve the above goals would have become a normal expression of the organizational "culture" of the organization (Holeva, 2014; Tsiotras, 1995; Kefis, 2014) focusing on creating team spirit among employees, and paying more attention to human relationships. In the same way Venkatraman (2007) argued that TQM framework was composed by leadership, quality culture, continuous improvement and innovation, employee involvement, quick reply and administration information, client-operated quality and cooperation improvement.

The dissemination of an organization's *vision* is an obligation and duty of the "Administration". This vision sets general goals which are achieved through the right policy and are synchronized with all the objectives and procedures of the organization (Simeonidou, 2015). The implementation of TQM is favored when business is developed to remain alive in a highly antagonistic workplace, by improving administrative infrastructure. Commitment of leadership and administration to implement TQM, development of appropriate techniques and changes through continuous training of employees, changing mentality and targeting to meet the needs of both customers and employees, systematic participation of all employees, priority to continuous improvement and incorporate quality into process design are some of the steps to be followed (Dervitsiotis, 2001).

2.2. Total Quality Management Components

According to Akrivos et al., (2009) one of the most significant components that lead to the effective implementation of TQM in an organization is Administrative Leadership - Commitment and Commitment to Quality as Leading organizational culture and behavior, as well as leadership and structure standards that are very important factors for an organization. Furthermore, Universal participation - Employee empowerment stimulates and activates workers in communicating and taking part in decision-making. Additionally, one more component of TQM is the customer-supplier chain. Several criteria for assessing suppliers, such as their reliability, historical analysis, and interviewing prior to their collaboration, have been established to provide the best possible relationship between customer and supplier. These evaluation criteria are susceptible to statistical analysis, with a view to the prevention of errors, which is a core principle of TQM. Process improvement is also an important component of TQM, which aims to improve business activity and thereby maximize customer satisfaction. Finally, continuous improvement through the continuous training of new skills and knowledge helps the organization to fast respond to the new politics of modernity.

To conclude, "The implementation of an TQM program does not only entail changes in the organizational structure or administrative processes and resource allocation but also brings about changes to the fundamental values on which business action is based. Therefore, consideration should not be given to designing and implementing the TQM in the technical details or in the quest for the true will to succeed, but on the resistances to change stemming from the prevailing administrative culture. Integrating the value of quality into the philosophy, culture, and identity of a business or organization is the first essential step in reforming and eventually maintaining it in its turbulent operating environment" (Akrivos et al., 2009).

2.3. Total Quality Management Model - EFQM

A foundation takes a significant strategic decision for its development when it adopts a quality management model. The plan and performance of an Institution's quality management system is affected by workplace and alterations in it, risk associated with it, various needs, specific objectives, products it supplies, procedures it implements and finally extent and organizational formation (ISO, 2017).

TQM is a carefully planned, integrated, continuous, interoperable and interdisciplinary strategy that should be put into effect in every foundation and aims to improve processes, products and services

through continuous improvement of quality, systems, performance and reliability (Milakovich, 2005). The International Quality Organization has developed recognized quality systems, and also National Quality Awards have been developed, which represent important alternative sources for quality system management (Akrivos & Psaropoulos, 2008).

One of the most widespread models of TQM is the European Model of Business Excellence (EFQM Excellence Model). Pratasavitskaya and Stensaker (2010) argue that its reference is of particular interest since the analysis of such quality model at HEIs has been rarely mentioned in literature. Likewise, some HEIs have started to think its implementation, as has been mentioned in literature (Osseo-Asare Jr. and Longbottom, 2002; Calvo-Mora et al. 2005; Rosa and Amaral, 2007; Campatelli et al. 2011), due to the fact that it supplies a monadic frame for the estimation of value of an institution and powerfully recommends the application of a continual amelioration process (Campatelli et al. 2011)

European Foundation Quality Management (EFQM Excellence Model)

This model (EFQM) was founded in fourteen Western European countries, in 1988. In 1991, the Foundation instituted the "European Quality Award" to distinguish businesses that are distinguished by high quality performance. In 2006, it was decided to rename the "European Quality Award" to a "European Foundation for Quality Management" (EFQM Excellence Award) (EFQM, 2017).

In Greece, the national representative of this model is the Hellenic Business Management Association (EEDA). The European Model of Business Excellence is a tool that supports self-evaluation, benchmarking and continuous improvement of the organization (Karipidis, 2012).

The central idea of this model is supported by the belief that the "human resources" of the organization, its "customers", "society" and its overall performance are achieved through "leadership", "strategy", "human resources", "processes", "collaborations and resources". For each criterion, a different percentage of gravity is defined, which reflects its contribution to achieving "business excellence" (Loffler & Vintar, 2004). Its main purpose is to promote and ensure a methodical and gradual rise in the quality of European foundations, so as to become stronger in the international market (Herget & Hierl, 2007).

EFQMs' enabler criteria contain both the social and the technical factors of the TQM approach. These factors are mutually related. A "result excellence" forms the basis for the four result criteria. In such a way the EFQM model stands for a TQM method (Bou-Lluisar et al., 2009).

Due to the fact that "EFQM" was initially connected with business sector, the academics didn't support it warmly. In that way it was implemented in a few HEIs. On the other hand the continuous and growing demands of society for high quality, the need for accountability in society and the growing presence of the market in HEIs have highlighted the importance of quality, management, safeguarding and improvement of an undeniable reality that covers education, testing, analysis, services and institutional techniques (Rosa and

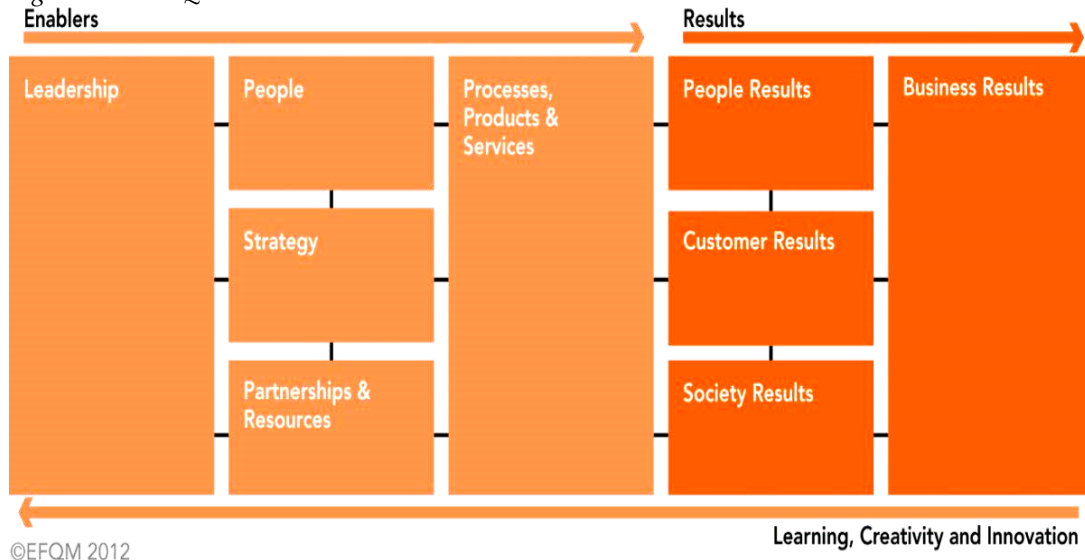
Amaral, 2007). As a result, some HEIs have begun to consider its implementation (OsseoAsare Jr. and Longbottom, 2002; Rosa and Amaral, 2007). In addition, since "EFQM" is globally becoming famous and is acceptable as a framework for estimating, managing and bettering the quality of European organizations, it can be considered that adapting its fundamental formation could serve as a self-assessment technique for HEIs, performing as an interior quality management tool, confidence and progress (Rosa and Amaral, 2007).

By adopting EFQM model the organizations can find the way to Excellence and TQM, learn a self-assessment technique that identifies opportunities for improvement and enables them to plan improvement activities. Additionally, the organization could distinguish, pleased and dedicated clients, winning leaders and good sense of objective throughout the Institution. Simultaneously, the organization can be benefited by steady and well-managed change. People and all interested parties are engaged and

motivated using data in an effective and efficient way. Finally, pride and desire lead to further improvement, the use of EFQM minimize firefighting and repeat problems, while innovation becomes a rule with excellent results, including financial performance (Karipidis, 2012).

According to Calvo - Mora et al., (2006) the EFQM excellence model is a framework of non-specification that defines nine criteria that each organization can use to evaluate progress toward excellence. The dimensions of the model (*Figure 2.3-1*) could be distinguished into two categories which are the five identifying factors or enablers and four result types (Safari et al., 2012) which are explained below. The enablers as activators present the path the Institution follows and the results focus on accomplishments related to its stakeholders (EFQM, 2003).

Figure 2.3-1 EFQM Model in Action



Source: (EFQM, 2018)

A. Identifying factors description or Enablers

Leadership. As Calvo-Mora et al., (2005) argue “leadership” takes action as a lever for an institution and guides strategies for implementing vision, mission, values, ethics, and behavioral patterns through the management of “resources”, “people” and “processes”. The theory of TQM states that leaders who are flexible, allowing institution to respond in an appropriate way to make certain its continued successfulness, can coordinate people’s actions in order to achieve the organization target. Particularly, leaders should not change the organization’s workplace in which members of staff participate in the process of achieving organization targets (Lewis et al., 2006 as cited in Sadeh et al, 2013). Also, leaders can identify, monitor, review, and drive improvements to the management system and performance. For the same purpose, leaders should also cooperate with partners, customers, and representatives of society, setting up distinct standards for them (Tari et al., 2007), so as to enhance the culture of excellence and ensure flexibility and effective management. According to Sadeh and Arumugam (2010), “leadership” is the factor that is most effectual, which has the biggest impact on the other excellence meanings.

Strategy. Performing successful strategy requires effective and efficient partnerships, resources, measurement systems and organizational structures with particular care to quality objectives and procedures (Lobo and Ramathan, 2005), which are developed

by focusing on stakeholders (customers, employees and society), and the external environment. In fact effective strategies according to Thompson et al., (2013) are comprised of competitive operations and business approaches that managers use to enhance business, attract and satisfy their clients, compete successfully, perform operations, and achieve the desired levels of economic, social and ecological sustainability, through a continuous process of development, inspection and update. Furthermore, the logic of TQM shows that both strategy and policies are communicated and developed with plans, processes and objectives.

People are put in order, involved, empowered and interact effectually within the organization so as to feel the care of the organization for them. As Tari et al., (2007) argue employees are the ones who execute the procedures, so that people are the key elements that are able to operate in such procedures to enhance the quality. More specifically, performance of people management project such as developing their skills and promoting fairness and equality finally will lead to better quality products and procedures (Phan et al., 2011). People's plans support the organization's strategy and their knowledge and abilities are being developed. According to Safari et al., (2012) human resources appear as the basic idea for estimating the competitive assets of organizations. To conclude, people are those who are informed, rewarded, recognized, encouraged, and committed and use their skills and knowledge to benefit the whole organization.

Partnerships and resources. Planning as well as management deal with the organization's relationships (with partners and suppliers) and resources in a way that supports strategy and policies, as well as the efficient operation of processes (Calvo Moral et al., 2006). For example, the production of good products succeeds through the supply of high-quality raw materials from competent suppliers. In such a way competent supplier and high-quality raw materials positively affect the management process (Kaynak,2003). Managing material assets such as buildings, equipment, supplies and stock, natural resources in a sustainable way will enhance the image of the above criterion. Finally, new technology, knowledge and information management will help to make effective decisions on its environmental and societal impact of the organization.

Procedures, products and services. The above criterion has as an objective the fulfillment of needs of its stakeholders. Process management has a direct impact over

its stakeholders and more specifically over clients, staff and community. As Sit et al., 2009 claim that in order to achieve customers satisfaction, process management should be continuous because it is connected to many crucial customer's characteristics. Moreover, since the processes are designed and managed to optimize stakeholder value, the employees are benefitted more due to the fact that all these processes are performed by them. According to Eskildsen et al., 2000, the process management also contains the appliance of environmental systems, that influence the successfulness of society.

B. Results

Customers are categorized into two groups of measurements: The first group is based on measuring customer perception based on their satisfaction, dedication or value to the business (effectiveness). Measurements can be made in a variety of ways, directly or indirectly, with customer inquiries, focus teams, supplier evaluations, customer comments, customer grievances, etc. The second group of measurements develops from the inside of the organization that tries to monitor, understand, improve performance, and anticipate the perception of its external customers (profitability). In this way, the organization evaluates indicators for its operations per day, week, month, etc., in order to predict customer perception or satisfaction long before it is measured. According to Madan (2010) this criterion has to deal with the priority of satisfying external customers.

People are categorized into two sets of measurements. The first group of measures (efficacy) counts the perception of the people about how they feel with themselves, their work and the organization. These are subjective information - indicative of the relationship between the organization and its people. The second set of metrics (efficiency) deals with people's performance and includes indicators that show how well they work or how well they are delivering. With these indicators, predictions of people's perceptions are made. They are classified into five groups: participation and involvement, definition of goals, capabilities and accomplishment of activities, execution leadership, teaching and job development, and interior communication. According to Osseo-Asare and Longbottom (2002), well-motivated and well-trained employees that are satisfied, will do their jobs more efficiently, having a positive impact on students (customers) performance.

Society is considered the environment in which the organization operates, and every person or group influenced by the existence of the organization. Customers and partners are also included in roles other than those of traders, e.g. not in their professional transactions but in their family life. The first group of measures (effectiveness) counts the perception of society, directly by surveying opinions and indirectly by collecting data from published reports, public meetings, public figures and authorities. The second measurement group (efficiency) includes internal performance metrics applied by the institution in order to watch, comprehend, predict, and upgrade performance. Such measurements are related to volume, frequency, time, weight, etc., and it is easier for an organism to carry out, e.g. waste volume or the employment time of unemployed young people.

Business results. The results of an organization are important for all stakeholders. From the critical results, interest is focused on those that are most important for the organization to understand performance and to satisfy its stakeholders. The measurements are sorted into two parts. The first part has the crucial strategic results, including the economics. The second part has critical performance indicators, including measurements to watch, comprehend, forecast and succeed better critical results. The type of results is determined by the performance management system so that interested parties are satisfied.

2.4. Internal relations among the variables of EFQM

As stated by the official excellence model of EFQM 2003, extremely good outcomes in terms of "performance", "clients", "individuals" and "community" are accomplished through "political and strategic leadership" guidance provided through "individuals", "cooperation and resources" and "procedures". Gómez et al., (2015) argue that the graphical diagram of EFQM model (EFQM, 2018) depicts a cause-effect relation among the enablers and result variables (Gómez et al., 2015). In a similar way Garcia-Bernal et al., (2004) support that an organization in order to achieve excellence in the financial sector, must pay close attention to all relationships of its quality elements. Also, Bou-Llugar et al., (2005) as cited in (Safari et al., 2012) argue that fundamental prerequisite to achieve excellence in results is accomplishing superior results in enablers. Consequently, interrelationships among the different criteria of EFQM excellence model exist. In those relationships, the enabler's variables are accountable for the performance of result variables. Excellence will be achieved through being successful in all individual areas of all variables.

In the last few years many studies have been made on this issue, sometimes analyzing direct relations among the variables (Calvo-Mora et al., 2005; Calvo-Mora et al., 2006; Gómez- Gómez et al., 2011; Heras-Saizarbitoria et al., 2012; Sadeh et al., 2013) starting from the left side (the enablers) and ending to the right side (the results) and other times indirect relations among the variables (Safari et al., 2012). A third approach which is a mixture of the above mentioned two approaches, analyses both the direct and indirect relations among the enablers and result criteria (Zade et al., 2011).

Another different approach from the above mentioned studies, which was followed by Bou-Llugar et al. (2009); and Calvo-Moral et al. (2014) was mainly focused on analyzing how the enablers affect the total performance of the organization as a whole (holistic approach) by taking into consideration the social and technical characteristics of the enablers.

Finally, it could be said that although there is a large number of researches on this subject, the conclusions are not very clear. Moreover, many interrelationships that aren't referred to the classical model of EFQM have been found (Dahlgard-Park, 2008). Thus, it is urgent for researchers to execute more empirical studies so as to discover the possible links among the enablers and results variables, of the EFQM model.

2.5. TQM in Greek Tertiary Education

Increased access to higher education, increased social accountability, reduced government subsidies led to the need to find different sources of income. Changes in student population, the need for adaptable teaching stemming from evolutions in information technology, worldwide integration and the need for coherence in education principles have guided to the establishment of quality models in tertiary education. (Abbot, 2000; Altbach, 2000; Gordon, 2001).

HEIs have put into action the TQM model in order to repeatedly confirm the highquality of education anticipation so as to overcome current challenges (Ardi et al., 2012). In addition, TQM excellence model has also been implemented in international universities and colleges (Grant et al., 2004). In the same way many educational organizations in developed countries such as Canada, UK Singapore, USA Switzerland and Australia have also applied quality management models (Law, 2010; Dumond and Johnson, 2013). The same happens in countries such as Malaysia and Turkey (Grant et al., 2004).

In addition, efforts were made to create a European platform, in the form of a coordinating advisory body for these procedures, aiming at strengthening and converging evaluation procedures while safeguarding national specificities and autonomies (Fasoulis, 2005). Thus, the European Union has set up various initiatives that have guided to the establishment of the European Quality Management Foundation (EFQM, 1995), presentation of a proposal for European cooperation in the area of quality assessment of tertiary education and setting up the European Network of Quality Assurance (ENQA) (Fasoulis, 2005).

The European Union's council, in 2007 due to globalization, made a statement on the modernization of HEIs in order to achieve the modernization of HEIs of Europe as a key element of improving competitiveness based on knowledge transfer and innovation, adequate autonomy, improved governance and quality assurance as a driving force for change in Tertiary Education (Edwards et al., 2009). HEIs are invited to participate in and react to the rapidly changing phenomena of competition, education that is progressively, consistently and irrevocably globalizing, economy, entrepreneurship and the international market, political and social currents and the threatened resource shortage that affects a large part of the planet.

The quality parameters of tertiary education are (Edwards et al., 2009):

- the adaptability of higher education goals to each curriculum for scholars who will exist in an energetic professional and flexible environment.
- the adaptability of the curriculum, which will take into account the basic fields of knowledge, as well as the alterations in the extrinsic environmental factors of HEI's.
- the results of tertiary education regarding the models of knowledge, skills and attitudes of graduates.
- facilities, organization of study programs, etc. (Scheele, 2000)

Quality assurance (QA) in tertiary education takes into account the definitions of the Phase report (1998):

- Quality assurance is a general term that includes all policies, processes and actions that maintain and enhance the quality of tertiary education.
- Evaluation, is the systematic and critical analysis of the quality of higher education
- Quality evaluation is synonymous with the assessment, particularly when it is an external element.
- Quality oversight is the assessment of an institution that initiates procedures for quality assurance.

TQM is so widespread that from its roots in private sector, in manufacturing, in services and health care today is penetrating administration and development of knowledge (Venkatraman, 2007; Campatelli et al. 2011; Mehta et al., 2014). Finally, improving the performance of HEIs has become a universal matter in all nations of the globe (Zabadi, 2013).

Based on the above fundamental directions regarding the implication and the assessment of TQM in Higher Educational Institutes a useful tool can be constructed to measure TQM based on the EFQM model. This gap is going to be covered in the framework of the study presented here in.

3. Methodology

3.1. Research Design

3.1.1. Deductive approach

The approach of deduction is a prevailing research method in natural sciences, where legislation introduces the base of clarification, permits the prediction of phenomena, foresees their occurrence and thus allows them to be checked (Collis and Hussey 2003). In deductive reasoning the researcher starts working from general statements leading to more particular ones, moving from an undoubtful theoretical point that has been developed before the data collection and its analysis (Saunders et al, 2009). The opposite happens for inductive reasoning. More specifically, it starts from a general theory. It is narrowed down into a specific hypothesis that is tested. It is also narrowed down more in order to collect specific observations to test our hypothesis. Finally, an analysis of the previous observations helps us to confirm or reject our theory.

According to Bryman and Bell (2015), the deduction approach includes six steps which are:

Theory	Hypothesis	Gathering of data	Discoveries	Hypothesis approved or disapproved	Review of theory
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In this study the deductive method was chosen for various reasons. First of all, it looks much linear in an explicit and particular order while one step follows the other (Bryman & Bell, 2015). In addition, the deductive approach is a quicker method due to the fact that the concepts are grounded on a short-extended time of data collection, as opposed to the inductive approach. Deduction has a small possibility of failure, although dangers exist, like the possibility of respondents not giving back the answered questionnaires to the researchers. It also emphasizes scientific principles. This well-structured method is used to make clear any causal interrelationships among variables as well as to collect quantitative information in visual display (Saunders et al., 2009). Finally, the above approach is applied so as to examine hypotheses that have been developed, grounded on the existing theory.

3.1.2. Quantitative (statistical) research

The deductive method is generally applied to research that is quantitative and causal whilst the inductive method is applied in qualitative and exploratory research (Saunders et al., 2009; Bryman & Bell,

2015). According to Saunders et al., (2009) quantitative research (statistical) is mainly deployed as an equivalent for every data gathering method (like questionnaire) or data analysis process (like statistics or diagrams) that produces or deploys figures. It is basically based on the application of statistical methods to identify specific points of views for the sample or the population (Huesco & Cascant, 2012). On the contrary, qualitative research (non-statistical) is mainly deployed as an equivalent for every data gathering method (like an interview) or data analysis process (like categorizing data) that produces or deploys nonarithmetical data. So, the main reason that the researcher chooses to adopt the above-mentioned method is that is grounded on the concepts that come from figures, gathering outcomes in arithmetical and conventionalized data and analysis is operated by using graphs and statistics.

3.1.3. Primary research

Primary research is used in this study, since there is an effort to answer questions relevant to Higher Education Institutes. Primary data was gathered through a well-structured questionnaire by interviewing the administration, administrative staff, educational personnel and other kind of Labor relationship of HSJ.

3.1.4. Explanatory research

According to Saunders et al. (2009), researches that set up causal interrelationships among variables could be characterized as explanatory survey. On the other hand, exploratory data analysis (EDA) emphasizes the deployment of graphs in order to investigate and comprehend the data. Well-structured interviews could likewise be developed in connection with an explanatory survey, in a statistical meaning, in opposition to exploratory studies that cannot be used. However, explanatory survey needs data to examine any statement.

In this research design the researcher uses the explanatory or analytical method in order to help us test and make clear interrelationships among variables, especially in cause and effect interrelationships (Saunders et al, 2009), in terms of enabler and result criteria.

3.1.5. Empirical study

The methodology applied is an empirical study that is used so as to pursue our objectives, because it is built on the gathering and analysis of primary data, based on observation and experiences. The researcher uses this method in order to explore more thoroughly the causal relationships among the agents and results criteria of EFQM excellence model (Westlund, 2001).

3.2. Data Collection

In this research study the researcher uses the case of HSJ because EFQM has been applied to several ordinary HEIs but never in a HEI which has a special mission.

For data gathering, a structured questionnaire was developed during the month of March, adapted for HEIs, in order to select primary data from the population. So, the researcher follows the self-assessment method. The scope of the above tool is to evaluate some dimensions proposed by the EFQM excellence model from literature. Personal interviews were conducted. Closed questions (Dillman, 2007) or compulsory selection questions (deVaus, 2002), were used in order to supply different replies from which the respondent was called to select. This kind of question was used due to the fact that it was faster and less difficult to be answered, as it required the minimum effort in writing. In addition, codes were added to response categories in order to help us during the process of data analysis. The sampling frame was obtained and all members of it were approached for this research.

3.3. Data Analysis

Data analysis is carried out with the help of descriptive statistics and correlation analysis. Descriptive statistics are applied to pursue the first three objectives, while the correlation analysis is used

to pursue the fourth one. From one hand descriptive statistics is used to evaluate the operations and the performance of HSJ's services, to identify the good practices and the points to be improved. On the other hand, correlation analysis is used to see how strong or weak the relationship among the different variables of the enablers and results is. In order to pursue the above processes, the researcher uses SPSS Statistics version 20 software package.

Cronbach alfa is used to examine the reliability of the data that was gathered from the structured questionnaires that were completed by those interviewed. Cronbach alfa was above the 0.90 level in all dimensions, which demonstrates an excellent level of statistical reliability, indicating that the objects are working on the same underlying construction. Thus, reliability is confirmed by the fact that Cronbach's alfa coefficients values fulfil the cut-off value of 0.7 (Prajogo et al., 2016). It is worth mentioning that due to the fact that the customized questionnaire, which was based on the EFQM model and previously developed questionnaires, it is used extensively in literature, its reliability and validity had been verified. Hence, no pilot survey was necessary.

Moreover, the EFQM's validity and reliability is proven through its empirical implementation to various sectors (Suárez et al., 2014). According to Calvo-Mora and Criado, 2005 as cited in Suárez et al., 2017, this fact has been confirmed in areas such as education.

3.4. Instrumentation

In order to proceed with the targets of this survey a well-known theoretical framework and structure was adopted from literature with some modifications that were made in order to adapt to the particularities of HSJ, but the structure and the theoretical framework were maintained as such in the model. The wording of the questions was made so that depending on the type of the question, the practices applied to the HSJ in an understandable way, so that there was no ambiguity in their content. The questionnaire that was deployed, was grounded on the self-assessment matrix developed by EFQM model (EFQM, 2018).

This framework has nine dimensions (five "enablers" and four "results"), named as "leadership", "strategy", "human resources", "partnerships and resources", "processes, products and services", "customer results", "people results", "society results" and "business results". So, the questionnaire was separated into ten categories, the initial five of which had to do with the enablers, the following four had to do with results and the last one had to do with demographic information. More specifically, the questionnaire consisted of sixty-one (61) questions, including demographic questions, which were related to gender, age, educational level, employment status, years, and work relationship to the organization. The first fifty-five (55) questions were grouped into nine (9) groups of questions, which corresponded to the nine (9) main criteria of EFQM model and which were separated into two (2) main categories. The first category concerned the identification factors for the EFQM model in HEIs and consisted of the first five (5) criteria of the model: "leadership - administration", "policy - strategy", "human resources", "relationships and resources", and finally "processes and services". The second category is consisted of the following four (4) criteria of the model such as: customers - students, human resources, community and business results.

A five-step Likert scale was used, with the following options:

Strongly Disagree = 1,

Disagree=2,

Neither Agree nor Disagree=3,

Agree=4,

Strongly Agree=5

This approach made it possible to assess the commitment of the organization to each criterion and sub-criterion and supplied a rating that measures the coherence among systems and outcomes of organizational quality and the model of excellence. Therefore, the questionnaires were helpful for creating a quality standard and for identifying deviations in organizational results (Bou - Llusar, 2005). The wording of the questions was made so that depending on the type of the question, the practices applying to the HEIs were in an understandable way, so that there was no ambiguity in their content.

Staff involvement in the study was based on individuals free will. The completion of the instrument by the participants with the presence of the interviewer was an advantage in a way that clarifications if required could be provided on the issues under consideration and furthermore fewer missing data appeared.

4. Research Findings

In this section, the findings of the survey are set out in relation to the answers of the HSJ staff. The analysis and the description of the results refer primarily to each question, followed by a short analysis and description of the criteria and finally, the total results are presented.

4.1. Demographic Characteristics

Out of the one hundred and forty-four (144) questionnaires expected to be completed, a response rate of 65.97% was observed, thus ninety-five (95) questionnaires were completed.

Education Level: Of all the respondents, 18,28% are graduates of tertiary education, of which 41,94% hold a postgraduate diploma and 36,56% hold a doctorate. Finally, a minority of 3,23% are graduates of Secondary Education. The Administrative Staff and even more the educational personnel are highly educated. Labour Relationship: Out of the outcomes of the study, the plurality of the respondents (76,09%) is from Educational Personnel, followed by a 19,57% percentage of the respondents that are from the Administrative Staff, and finally the rest 4,35% is from another kind of Labour relationship. Age: The majority of respondents 39,78% are over 56 years old, with 34,41% between 46-55 and 22,58% between 36-45. Finally, just 3,23% are between 26-35 years of age. The administrative council chooses to select highly educated people as administrative staff and educational personnel, in order to accomplish its goal. This explains the fact that HSJ employs the above two categories that are in the older age ranges. Years of work in HSJ: The highest percentage of respondents 35,87%, have worked at HSJ for 2-4 years, while 32,61% have work for 0-2 years. A percentage of 18,48% have worked for 4-10 years while 13,04% have worked more than 10 years. Gender: Of all the correspondents 56,99% are men, while 43,01% are women. A significant objective is to keep a balance among the two genders in order to be equally represented and that seems to have been achieved to a large scale. Employment Status: Most of the participants are Judges (42,39%), while 20,65% are Professors. The administrative council of HSJ prefers to choose more Judges as educational personnel in relation to the other categories of teaching staff. 13,04% are Employees, 9,78% are Scientists, 5,43% are Heads of departments, 4,35% are Lawyers and finally, 2,17% are Public Operators and Directors.

4.2. Current magnitudes of the “enablers” and “results”.

Processing and analysis of the answers to the questionnaire follows, which is grounded on the nine (9) criteria of the EFQM model, identifying the good practices already in place and the points that need to be improved.

Questions related to Leadership

Generally, it can be seen that the plurality of participants gave positive answers to the questions related to “leadership”. Especially, in the first question of the above criterion it is obvious that the respondents believe that HSJ has succeeded developing and sharing the mission and vision of HSJ. The

highest percentage (72.63%) of positive answers was given to the above question. On the other hand, although the plurality of respondents agrees that “leadership” creates a culture of excellence for employees and also that “leadership” encourages and promotes creativity and innovation for workers, the percentage of these positive answers is the lowest (64,21%). From the results of the answers of the first criterion, it has been concluded that “leadership” should give more motives to the employees in order to create a culture for excellence, creativity and innovation.

Questions related to Strategy

Most of the participants answered positively to all the answers of this specific variable. The highest percentage (83.16%) of positive answers is noted in the third question of this criterion showing the strong belief of the respondents that HSJ's “strategy” can be modified to respond to environmental changes. Nevertheless, the lowest percentage (60.00%) of positive answers is noticed in the last question of the above criterion, depicting a significant difference in comparison to the third question. Thus, HSJ's strategy and the way it can be achieved should become more widely and more regularly communicated to staff.

According to the outcomes of the criterion relative to “strategy”, HSJ should give more attention to the needs and wants of its stakeholders by providing them a clearer strategy plan which would be controlled and improved continuously.

Questions related to People

HSJ seems to give high priority to the issue of care, health and safety since the highest percentage (91.58%) of positive answers is observed in this last question of this criterion (table 4.2-20). On the other hand, the lowest percentage of positive answers is noted in the first question because the plurality of participants at a rate of 57.89% generally agreed that the HJS's strategy includes a plan for the “human resources” (people) that will be needed in the future. As a conclusion it could be said that the HSJ should improve its internal communication of “human resources” in a more effective and efficient way. Its “people” should be provided with all the necessary means in order to become more skilled, creative, talented and finally dedicated. A more transparent performance assessment system that would be more meritocratic and rewarding will help in this direction. Thus, “human resources” would easier understand the mission, vision, values and strategy of HSJ.

Questions related to Partnerships & Resources

The majority of respondents gave positive answers to the questions related to “partnerships & resources”. More specifically, the fourth question of the above criterion, namely whether HSJ manages its finances in order to secure lasting benefits, gathers the highest rate (81.06%) of positive answers, showing that little has been left to reach excellence in this specific area. On the other hand, a rate of 71.58%, generally agrees that the HSJ has chosen its partners and suppliers based on its strategy, which is the lowest rate of positive answers in this criterion.

From the results of the answers of the fourth criterion, it has been concluded that HSJ should improve its plans and management of choosing the appropriate external partners and suppliers, so as to uphold its strategy and policy.

Questions Related to Processes, Products & Services

As can be seen from the tables of frequencies, the majority of the participants answered positively to all the answers of this specific variable. However, the highest percentage (86,31%) of positive answers is noted in the penultimate question of this criterion, showing the strong belief of the respondents that HSJ manages and promotes relationships with students and employees in a way that creates mutual trust and understanding. From the other side the lowest percentage (69,48%) of positive answers is noticed in the fourth question of the above criterion. So, HSJ should measure and refine the outcomes of the plans for improving “processes and services” in a more effective way.

According to the outcomes of the criterion relative to “processes, products and services”, HSJ should give more attention to designing and managing processes having as a target the satisfaction of its stakeholders.

Questions related to Customer Results

Generally, most of the respondents gave positive answers to the questions related to “customer results”. All, the answers on this above-mentioned criterion have reached a rate between 70.52% and 77.90% which means that the HSJ has to improve its existing procedures in this criterion in order to complete the remaining rate of about 25% to reach excellence. However, the highest percentage (77.90%) of positive answers is given on the monitoring of students’ complaints and suggestions. On the other hand, the lowest percentage (70.52%) of positive answers is given on the objectives that were set for measuring student satisfaction.

As a general conclusion of this first result criterion is that HSJ should improve and continuously implement measurements and surveys that show results on customers’ (students’) satisfaction, while keeping a record of them, in order to use it for benchmarking each time it is needed.

Questions related to People Results

Looking at the rates from all the questions answered in the result criterion that is relative to “people results” it can be observed that most of the relevant questions have been positively replied by the respondents. The question that gathers the highest percentage (66.32%) of positive answers has to do with the evaluation of adequacy of individual competencies in relation to the satisfaction of the needs of the HSJ services. In contrast, the questions that gather the lowest percentage (51.58%) of positive answers have to do with the conduct of investigations to assess employee satisfaction (*table 4.2-44*) and the quantitative data from the last three years of survey results of employee satisfaction surveys, that HSJ keeps.

In order to raise the rates in the questions of this result criterion the HSJ should take some measures. More investigations should be conducted to estimate employee satisfaction, while keeping a record of each for at least five years. On the one hand the governing bodies of HSJ should make known to the employees the strategy that this specific School follows, while on the other hand they should make large efforts to cultivate a communication channel based on mutual trust. Its individual’s competencies should be evaluated in relation to the accomplishment of HSJ targets. Better mechanisms should be developed to evaluate and improve employee productivity, while the above-mentioned target should be set to increase employee satisfaction, internal quality communication, reward and the ability to evolve.

Questions related to Society Results

At first glance of the frequency tables relative to “society results” it is noted that most of the questions were answered positively by the respondents. Particularly, in the first question of the above criterion which obvious that the majority of respondents believes that HSJ has succeeded to systematically support activities that encourage social activation of employees. The highest percentage (55.32%) of positive answers has been given in the above question. Nevertheless, the lowest rate (43.16%) of positive answers is given in the last question of the above-mentioned criterion, which had to do with the quantitative data of the last three years of HSJ’s social performance. Comparative to the other eight criteria this specific criterion generally presents the lowest values of positive answers.

It is noteworthy to mention that especially on this specific variable a large rate of answers is gathered in the “Neither Agree nor Disagree” choice of the Likert scale, where especially in penultimate and the last question this percentage reaches almost the percentage of positive answers. In the future, in order to transfer these high rates from the “Neither Agree nor Disagree” option to “agree” or “strongly

agree" options, HSJ administration should take some drastic measures of proving its continuous effort to support activities that encourage their social activation to its personnel. In this direction, new developed mechanisms for assessing the impact of the social environment on HSJ and also for HSJ's image of its social work in the local community and in the country in general, will help significantly. Finally, HSJ should keep a record of the quantitative data of the above social performance.

Questions Related to Business Results

Finally, in the last result criterion that is relative to "business results", a high rate (61.95%) of positive answers is detected in the third question that refers to mechanisms for assessing HSJ economic course with appropriate indicators. In comparison the lowest rate (52.69%) is noticed in the second question that has to do with the mechanisms that HSJ develops for evaluating its performance in the field of innovation.

From the results of the answers of the last criterion, it is conclusive that the administration should give more attention to the development of innovative mechanisms that could evaluate its productivity and operational performance. HSJ business and financial performance must be measured every year with the use of appropriate internal indicators.

4.3. Descriptive Statistics of the structure variables

The descriptive statistics of the structure variables are presented below (Table 4.3.1):

Table: 4.3.1 Descriptive Statistics

Descriptive Statistics

Variable	N	Mean	Std. Deviation	Minimum	Maximum	Limit/ Index	Difference	
Leadership	95	23,31	5,75	10,00	30,00	18	5,31	23,31>18
Strategy	95	23,12	4,98	12,00	30,00	18	5,12	23,12>18
People	93	31,37	7,12	15,00	40,00	24	7,37	31,37>24
Partnerships & Resources	94	32,67	6,22	17,00	40,00	24	8,67	32,67>24
Processes, Products & Services	95	32,44	5,88	19,00	40,00	24	8,44	32,44>24
Customers	95	20,23	3,68	12,00	25,00	15	5,23	20,23>15
Results on People	95	21,74	6,53	7,00	30,00	18	3,74	21,74>18
Society Results	94	13,96	4,02	4,00	20,00	12	1,96	13,96>12
Business Results	90	14,76	3,76	4,00	20,00	12	2,76	14,76>12

From the first five criteria of the above table, which are the determinants of EFQM model implementation in HEIs, it is firstly observed that the average of the fourth criterion which is "partnerships & resources" has a higher degree than the limit/index 8.67 (difference), which means that the participants strongly believe that partnerships with suppliers, internal resources, information, material assets, new technology and knowledge are aligned and effectively used to achieve the organizational overall strategy.

Secondly, the average of the enabler criterion "strategy" has the smallest positive difference that is 5.12. Although there is a remarkable positive difference there is still room for further improvement. Of the following four criteria, which are the results of the successful or nonimplementation of the EFQM model at HEIs it is noticed that the average of the first criterion which is "customers" (students), has a higher degree than the limit/index 5.23 (difference), which means that the respondents considerably believe that

there are sufficient internal measures that are used to watch, comprehend, foresee and enhance the performance of the organization's people.

On the other hand, the average of the criterion "society results" has the smallest positive difference between the mean and the median, that is 1,96. This value seems to approach neutrality. In that case respondents' positive attitude is not so intensive. Generally, it can be seen that all nine criteria (enablers and results) have means that more or less have higher values than that of the limit/index (median). The above table is self-explanatory, however in order to depict qualitatively how long the distance is to achieve excellence, it is mentioned the following: The variable "society results" slightly passes the level of considering it good practice, since it is in the first quarter between the limit and excellence (maximum). On the other hand, the variables "leadership", "strategy", "people", "results on people", "customers" and "business results" are in the second quarter between the limit and excellence. Finally, the variables "partnerships & resources" and "processes, products & services" are in the third quarter between the limit and excellence.

From the above, it seems that the result variables "society results", "people" and "business results" have a fairly important distribution that is below the median. This means that the three above variables have a much longer way to go to reach excellence. In conclusion it could be said that there is still some way to reach excellence, which is different for each variable.

4.4. Correlation analysis of the structured variables

Next, there is a Pearson correlation test of EFQM model implementation factors and the results of its successful or non-application at the Hellenic School of Judges (Table 4.3.2).

Table: 4.3.2 Pearson Correlation coefficient between enablers criteria and result criteria of EFQM excellence model

Pearson Correlation coefficient									
	BR	SR	PR	CU	PP&S	P&R	P	STR	LD
BR									
SR	,87								
PR	,87	,86							
CU	,64	,64	,74						
PP&S	,74	,72	,82	,79					
P&R	,75	,73	,81	,74	,85				
P	,78	,75	,88	,78	,84	,86			
STR	,74	,74	,78	,73	,88	,84	,85		
LD	,76	,75	,83	,71	,85	,85	,85	,86	

**Correlation is significant at the 0,01 level (2-tailed). BR: Business Results, SR: Society Results, PR: People Results, CU: Customers, PP&S: Processes, Products & Services, P&R: Partnerships & Resources, P: People, STR: Strategy, LD: Leadership.

From the Correlation analysis it follows that all the criteria of EFQM enablers in HSJ have a strong correlation with all the criteria of the results, which in some cases this correlation becomes very strong. Their correlation coefficients are positive (greater than 0.7) and significant at $p < .01$, indicating that the determinants have a strong positive effect on the results and therefore there is a high probability of successful implementation of the EFQM model at HSJ. Particularly among the "people" and "people results" criteria the strongest correlation exists (0.88), thus having the highest effect in creating an essential relationship among them, while "leadership" and "strategy" have the least correlation (0.71), thus having the lowest effect on creating this relationship.

Correlation Analysis for testing H1 hypothesis

The “administration” (“leadership”) enabler has a positive correlation to “business results”, “society results”, “people results” and “customers”. ($r=0.76, p<0.001$; $r=0.75, p<0.001$; $r=0.83, p<0.001$; $r=0.71, p<0.001$ respectively). More specifically, the above results show us that there is a strong positive relationship among the variable leadership and the other three result variables of “business results”, “society results” and “customers” which in the case of “people results” (this positive relationship) is very strong ($r=0.83 > 0.8$).

Correlation Analysis for testing H2 hypothesis

The strategy enabler was positively and significantly correlated with “business results”, “society results”, “people results” and “customers”. ($r=0.74, p<0.001$; $r=0.74, p<0.001$; $r=0.78, p<0.001$; $r=0.73, p<0.001$ respectively). So, there is both a positive and strong relationship among the strategy enabler variable and the other four result variables respectively.

Correlation Analysis for testing H3 hypothesis

The “human resources” enabler was positively and significantly correlated with “business results”, “society results”, “people results” and “customers”. ($r=0.78, p<0.001$; $r=0.75, p<0.001$; $r=0.88, p<0.001$; $r=0.78, p<0.001$ respectively). Thus, there is a positive and strong relationship among the human resources enabler variable and the other three result variables (“business results”, “society results”, and “customers” respectively) which in the case of “people results” (this positive relationship) becomes very strong ($r=0.88 > 0.8$).

Correlation Analysis for testing H4 hypothesis

The “partnerships and resources” enabler was positively and significantly correlated with “business results”, “society results”, “people results” and “customers”. ($r=0.75, p<0.001$; $r=0.73, p<0.001$; $r=0.81, p<0.001$; $r=0.74, p<0.001$ respectively). From the above results it seems that there is a positive and strong interrelationship among the “partnerships and resources” enabler variable and the other three result variables (“business results”, “society results”, and “customers” respectively) which in the case of “people results” (this positive relationship) becomes very strong ($r=0.81 > 0.8$).

Correlation Analysis for testing H5 hypothesis

The “processes, products & services” enabler was positively and significantly correlated with “business results”, “society results”, “people results” and “customers”. ($r=0.74, p<0.001$; $r=0.72, p<0.001$; $r=0.82, p<0.001$; $r=0.79, p<0.001$ respectively). From the above results we come to the conclusion that there is a positive and strong interrelationship among the “processes, products & services” enabler variable and the other three result variables (“business results”, “society results”, and “customers” respectively) which in the case of “people results” (this positive relationship) becomes very strong ($r=0.82 > 0.8$).

5. Discussion Analysis

Hypothesis 1 (H1): The “leadership” enabler affects positively the results variables.

According to Badri et al. (2006); Wilson and Collier (2000); (as sited in Gómez et al., 2015); Zade et al., (2011) and Safari et al., (2012) a direct relationship exists among

“leadership” and the four result factors. So, our study findings that indicate that the “leadership” enabler affects positively the results variables, are consistent with the above-mentioned studies. It also means that “leadership” positively influences the result factors. The study of Badri et al. (2006); Wilson and Collier (2000); (as sited in Gómez et al., 2015) revealed that “leadership” was the most significant criterion to accomplish educational performance excellence. Furthermore, Samson and Terziovski (1999); Sun (1999) and (2000) (as sited in Gómez et al., 2015) also came to the conclusion in their study that there is a positive relation among “leadership” and “business results”.

Hypothesis 2 (H2): The “strategy” enabler affects positively the results variables.

In their study Martínez-Lorente et al., 2009 (as cited in Gómez et al., 2015), discovered that a direct relationship occurs between “policy and strategy” and the result in “customers” and “society”. Complementary, Sadeh and Arumugam (2010); (as cited in Gómez et al., 2015) have found a direct positive relationship among the enabler “policy and strategy” and the result variable “result on people”. In the same way, Evans (1997) and Terziovski and Dean (1998) found a direct internal relationship among the enabler factor “policy and strategy” and the result variable “business results”. The above research coincides with our study findings, since they discovered that the strategy enabler affects positively the results variables. Furthermore, Zade et al. (2011) and Safari et al., (2012) in their survey found the same strong relationships among the above variables.

Hypothesis 3 (H3): The “people” enabler affects positively the results variables.

The findings of Sadeh and Arumugam (2010); Martínez-Lorente et al., 2009 (as cited in Gómez et al., 2015), claim that there is a direct relationship between the enabler variable “people” and the result variable “results on customers”. The second author has also found a straight relationship among the enabler variable “people” and the result variables “results on people” (Safari et al., 2012) and “results on society”. Finally, the enabler variable “people” influences the result variable “business results”, due to their causal direct relationship (Sun 1999; Samson and Terzviovski). Similarly, our findings indicate the positive relation among the human resources enabler and the results variable. All the above relations are in line with the findings of the authors Zade et al. (2011), who have found the above-mentioned strong relationships.

Hypothesis 4 (H4): H4: The “partnerships and resources” enabler affects positively the results variables.

Our findings conclude that there is a positive straight correlation among the factor “partnerships and resources” and the results variables. Likewise, the study of Sadeh and

Arumugam (2010) has detected that the “partnerships and resources” affect positively the “” result in customer” variable. Similarly, Martínez-Lorente et al., 2009 (as cited in Gómez et al., 2015) have located the direct relation among “the partnerships and resources” variable and the “business results” variable. Moreover, Zade et al. (2011) and Safari et al., (2012) survey findings revealed a strong relation between the “relation and cooperation” enabler and results variables, which is consistent with our study findings.

Hypothesis 5 (H5): H5: The “Processes, Products & Services” enabler affects positively the results variables.

There are many authors (Eskildsen et al., 2000; Sadeh and Arumugam, 2010) that have found the positive relationship among the enabler factor “processes, products & services” and the above three result variables “people results”, “costumer results” and “society results”.

Their findings discovered a strong correlation among the above variables. Finally, MartínezLorente et al. (2009) and Pannirselvam and Ferguson (2001) (as cited in Gómez et al., 2015) found a positive interrelation among the “processes, products & services” enabler and the “business result” variable. In addition, Zade et al. (2011) and Safari et al., (2012) in their research found the same strong relationships among the above variables. So, our finding that the “processes, products & services” enabler affects positively the results variables absolutely agree with the findings of the above-mentioned theories. In conclusion we can be positive that the assessed organization is sufficiently skillful at building cause effect relationships between the enablers and the result variables.

6. Conclusion-Suggestions and Managerial Implications

The severe economic crisis in Greece in the last decade, that has seriously been affected by the worldwide economic crisis of 2008, has led to the deterioration of all aspects of Greek society and economy. Thus, both the private and public sector faced enormous difficulties. Due to the high Greek

public debt, austerity measures that followed led to the decrease in financial resources that were available to the public sector and more specifically to Higher Education Institutes. Uncertainty was caused that negatively affected the sustainability of this special sector. However, it is of high importance for HEIs to implement a TQM model in order to increase their productivity, despite the fact that less means is supplied by the Greek Government.

This research study tries to show the importance of the EFQM excellence model by examining the interrelationships among the five enabler criteria and the four result criteria of the HEIs. By comprehending the relationships of the above-mentioned variables, it could be possible to analyze the effects on the model's criteria and also to implement suitable instruments for future enhancement (Safari et al., 2012). Descriptive statistics is also applied in order to evaluate the operations and the performance of HEI's services, to identify the good practices and the points that need to be improved. From the self-assessment of HSJ, it is clear that the European Model of Business Excellence (EFQM) is very likely to be implemented. The way of operation and performance of HSJ's services, received answers that lead to high-performance over-all criteria examined.

However, correlation analysis, which was often used in the past by many researchers in order to evaluate relationships between "enablers" and "results" (Zade, 2011; Safari et al., 2012) depicts that there are positive strong to very strong internal relationships between each one of the enablers criteria to the four result variables. The "human resources" enabler has the strongest positive relation with the results variables. The next enablers that follows in order, according to their strength relation with the results variables, are the "Processes, Products & Services", the "leadership" and the "relation and cooperation" variables. Finally, the enabler variable that has the least positive relation with the results variables is the strategy variable. All research hypotheses are confirmed which means that any development in the "leadership", "strategy", "human resources", "partnerships and resources" and "processes, products and services" will guide to the development of the four result variables and finally to excellence.

From the analysis of the findings of the descriptive statistics and more particularly the linear presentation of the distribution of the variables "Society Results", "results on people" and "Business Results" it is shown that some weak points exist, which need to be improved.

During the analysis, it is noted that there is a significant impact of the management agent on the pursuit of the variable results. HSJ strong points appear to be in "partnerships and resources", to "customers/students" and to "processes, products and services". It is noted that, despite the fact that there is a significant reduction in government funding, HSJ manages through its own means and with the positive mood and team spirit of its staff to achieve results of excellence. The internal and external communication of the different groups is efficient, and the use of high technology helps a lot in this direction. Students enjoy excellent service, constantly evolving towards high quality, and develop relationships of mutual trust and understanding with employees. Finally, processes result on productivity, innovation and financial management mechanisms add value to HSJ and create a picture of a reputable and trustworthy organization that respects and honors its present and future commitments.

In conclusion, Total Quality Management can be considered the answer to the financial crisis that our nation has been experiencing in recent years through the high training of human resources and new innovative ideas, elements created and developed in the Educational Institutions. The study of the bibliographic review and the results of this research reveal that it is of particular importance to apply a system and methodology grounded on the principles of the TQM, the model of EFQM excellence, to the Hellenic School of Judges, creating a powerful comparative advantage in the field of Higher Education, at national and international level.

HSJ administration should try to develop balanced indicators that will measure its performance on areas such as "people result", "society results" and "business results". What is required is a structure that

will balance the historical precision of economic numbers with crucial future performance data, and as well will help the company to implement its differentiated strategy. By comprehending the institution's strategy, personnel would be able to unfold its many secret organizational capabilities knowing their route and how they can help accomplish HSJs' vision. Simultaneously, administration should set strategic targets in the sector of economics, customers, interior procedures and education and development of its employees, which will monitor and evaluate periodically.

In the case of "people result", those internal measures will be used in order to understand and improve people's organizational performance. These indicators will give a distinct comprehending of the development and effect of the institution's people "strategy", "policies" and "processes". This criterion could achieve excellence through the improvement of leadership performance. Training and career development activities should take place all the time inside the organization in order to perform higher competency. Internal communication channels could help people in developing human relations. Active participation of people and engagement activities inside the organization will lead to higher performance activities.

In the case of "society results", those measures will be used so as to comprehend and enhance the organizational performance. The results should be consistent with the objectives that are related to the declared ambitions of the organization. They should also show positive trends over a period of time in order to accomplish sustainability. Moreover, the organization strategy should be based on benchmarking, that will direct its actions. Finally, the results should be broken down to comprehend the experience, wants and beliefs of stakeholders within society.

In the case of "business results", the indicators will be deployed so as to measure the institution's operational performance. Excellent business results could be accomplished through the continuous implementation of EFQM model which encourages organizations to design and manage for repetitive and durable good performance. Sustainability could only be achieved through the accomplishment of successful results for three consecutive years. Also, the goals set out by the organization should be relevant to the declared ambitions and the results should be matched against the above goals. The institution should use critical success factors for benchmarking as a method to choose partners. Finally, the set of results should be aligned with the strategy, business plan and basic processes of the institution.

It would be very helpful for managers if such self-assessment methods could be applied over a longer period of time, from about five to ten years, so as to accomplish an effective use of it. The competitive advantage of EFQM's excellence model towards other models is its simplistic distinction among results criteria and agent criteria. This special feature empowers professionals to adopt this excellence model in administration systems, determining key success factors, key performance indicators, activation goals and actions.

The EFQM model demands common commitments and goals and provides an ordinary system of communication as a basic feature of an educational organization (Doeleman et al., 2014).

7. Limitations and directions for future research

This survey has some restrictions that need to be taken fully into account when explaining its conclusions. The most significant issue is related to the interrelationships that have been analyzed. The specialized model proposed suggests interrelationships between "left to right" criteria, i.e. criteria of a more strategic nature to business outcomes. EFQM and most of the academic bibliography suggest this route of the interrelationships among enablers and results as dominant, even though it is not the unique one recommended. As a result, further alternative and/or supplementary explanation of causal interrelationships should be analyzed in the near future. The objects that TQM treats as a dynamic administration pattern that is designed to continually improve and increase the full potential of an organization are at all times topical issues of study and research at many different levels. A corresponding

survey could be carried out to implement a Total Quality Management System at another Higher Educational Institution, which would produce useful comparative results with this survey. In relation to the Hellenic School of Judges, if it acquires EFQM's "Committed to Excellence" distinction, a new survey could be carried out to highlight the improvements made to this organization by implementing the EFQM model of "organizational excellence".

References

- Abbot P. (2000). *Assuring Academic Standards and Quality in Higher Education-The UK Experience*. In Staples, W. & Strikanthan, G. (eds), *The Transactions of the 21st International Conference on Assessing Quality in Higher Education*, June 28-30, RMIT, Melbourne, Australia.
- Altbach P.G. (2000). *The Deterioration of the Academic Estate: International Patterns of Academic Work*. In Altbach, P.g.(ed), *The Changing Academic Workplace: Comparative Perspectives*, Centre for International Higher Education Lynch school of Education, Boston College, Massachusetts, pp. 11-34.
- Ardi, R., Hidayatno, A. and Yuri M. Zagloel, T. (2012). Investigating relationships among quality dimensions in higher education. *Quality Assurance in Education*, 20(4), pp.408428.
- Armstrong, G. & Kotler, P. (2015). *Marketing: An Introduction* (12th edition). Pearson, pp. 230.
- Badri, M.A., Selim, H., Alshare, K., Grandon, E.E., Younis, H. and Abdulla, M. (2006). The baldrige education criteria for performance excellence framework: empirical test and validation, *International Journal of Quality & Reliability Management*, 23(9), pp. 11181157.
- Belias, D., Koustelios, A., Varsanis, K., Kyriakou, D., Sdrolias, L. (2017). Integrating Total Quality Management Philosophy in Greek Higher Educational Institutions, in: *Strategic Innovative Marketing, Springer Proceedings in Business and Economics*. Springer, Cham, pp. 85-90.
- Birnbaum, R. (2000). *Management fads in higher education. Where they come from, what they do, why they fail*. San Francisco: The Jossey - Bass Higher and Adult Education Series.
- Bou - Llusar, J.C; Escrig-Tena, A.B.; Roca-Puig, V. and Beltrán-Martín, I. (2005). To what extent do enablers explain results in the EFQM excellence model? An empirical study, *International Journal of Quality & Reliability Management*, 22(4), pp. 337-353.
- Bou-Llusar, J., Escrig-Tena, A., Roca-Puig, V. and Beltrán-Martín, I. (2009). An empirical assessment of the EFQM Excellence Model: Evaluation as a TQM framework relative to the MBNQA Model. *Journal of Operations Management*, 27(1), pp.1-22.
- Bounds B., Yorks L., Adams M. & Ranney G. (1994). *Beyond Total Quality Management: Toward the Emerging Paradigm*. Mc Graw - Hill, Singapore.
- Bryman, A. and Bell, E. (2015). *Business Research methods*. Oxford: Oxford University Press.
- Calvo-Mora, A., & Criado, F. (2005). Análisis de la validez del modelo europeo de excelencia para la gestión de la calidad en instituciones universitarias: un enfoque directivo. *Revista Europea de Dirección y Economía de la Empresa*, 14(3), pp. 41-58.
- Calvo-Mora, A., Leal, A. and Roldán, J. (2005). Relationships between the EFQM model criteria: a study in Spanish universities. *Total Quality Management & Business Excellence*, 16(6), pp.741-770.
- Calvo-Mora, A., Leal, A. and Roldán, J. (2006). Using enablers of the EFQM model to manage institutions of higher education. *Quality Assurance in Education*, 14(2), pp. 99122.
- Calvo-Mora, A., Ruiz-Moreno, C., Picón-Berjoyo, A. and Cauzo-Bottala, L. (2014). Mediation effect of TQM technical factors in excellence management systems. *Journal of Business Research*, 67(5), pp.769-774.
- Campatelli, G., Citti, P., & Meneghin, A. (2011). Development of a simplified approach based on the EFQM model and Six Sigma for the implementation of TQM principles in a university administration. *Total Quality Management & Business Excellence*, 22(7), pp. 691-704.
- Collis, J., & Hussey, R. (2003). *Business research: A practical guide for undergraduate and postgraduate students* (2nd ed.). Houndmills, Basingstoke, Hampshire; New York: Palgrave Macmillan.
- Cruickshank, M. (2003). Total quality management in the higher education sector: a literature review from an international and Australian perspective. *Total Quality Management and Business Excellence*, 14(10), pp. 1159-1167.

- Dahlgaard J. & Dahlgaard - Park S. M. (2006). Lean Production, six sigma quality, TQM and company culture. *The TQM Magazine*, 18(3), pp. 263-281.
- Dahlgaard-Park, S.M. (2008). Reviewing the European excellence model from a management control view, *The TQM Journal*, 20(2), pp. 98-119.
- Dale, B.G., 2003. *Managing Quality*, 4th ed. Blackwell Publishers, Oxford.
- De Vaus, D. (2002) *Surveys in Social Research*. Edition: 5th. St. Leonards, NSW
- Dillman, D. A. (2007) *Mail and internet surveys - the tailored design method*, 2nd ed. New York. Wiley.
- Doeleman, H. J., Have, S., & Ahaus, C. T. B. (2014). Empirical evidence on applying the European foundation for quality management excellence model, a literature review. *Total Quality Management*, 25(5), pp. 439-460.
- Dumond, E.J. and Johnson, T.W. (2013), "Managing university business educational quality: ISO or AACSB?", *Quality Assurance in Education*, 21(2), pp. 127-144.
- Edwards M.E., Tovar M. & Sanchez-Ruiz L.Z. (2009). *Strengths and obstacles for quality assurance in the European Education Area: The Spanish casa*.
- Eriksson, H., Garvare, R., 2005. Organisational performance improvement through quality award process participation. *International Journal of Quality & Reliability Management*, 22 (9), pp. 894-912.
- Eskildsen, J., Kristensen, K. and Juhl, H.J. (2000), "The causal structure of the EFQM excellence model", MAAOE Conference Proceedings, Estes Park, CO.
- Evans, J.R. (1997), "Critical linkages in the Baldrige award criteria: research models and educational challenges", *Quality Management Journal*, 5(1), pp. 13-30.
- Evans J. P. & Lindsay W. M. (1999). *The Management and Control of Quality*, 4th edition, South - Western College Publishing, Ohio.
- Fissher, O., Nijhof, A., 2005. Implications of business ethics for quality management. *The TQM Magazine*, 17(2), pp. 150-160.
- García-Bernal, J., Gargallo-Castel, A., Pastor-Agustín, G. and Ramírez-Alesón, M. (2004). Total Quality Management in Firms: Evidence from Spain. *Quality Management Journal*, 11(3), pp.20-34.
- Gómez Gómez, J., Martínez Costa, M. and Martínez Lorente, Á. (2011). A critical evaluation of the EFQM model. *International Journal of Quality & Reliability Management*, 28(5), pp.484-502.
- Gómez, J., Martínez Costa, M. and Martínez Lorente, A. (2015). An in-depth review of the internal relationships of the EFQM model. *The TQM Journal*, 27(5), pp.486-502.
- Gómez, J., Martínez Costa, M. and Martínez Lorente, Á. (2015). EFQM Excellence Model and TQM: an empirical comparison. *Total Quality Management & Business Excellence*, 28(1-2), pp.88-103.
- Gordon G. (2001). *The roles of Leadership and ownership in building an effective quality culture*. Paper presented at the sixth QHE Seminar Birmingham (25-26 May).
- Grant, D., Mergen, E. and Widrick, S. (2004), "A comparative analysis of quality management in US and international universities", *Total Quality Management & Business Excellence*, 15(4), pp. 423-438.
- Harvey, L. (1995). Beyond TQM. *Quality in Higher Education*, 1, pp. 123-146.
- Heras, I. (2006). How quality management models influence company results conclusions of an empirical study based on the Delphi method. *Total Quality Management & Business Excellence*, 17(6), pp. 775-794.
- Heras-Saizarbitoria, I., Marimon, F., & Casadesús, M. (2012). An empirical study of the relationships within the categories of the EFQM model. *Total Quality Management & Business Excellence*, 23(5-6), pp. 523-540.
- Herget, J., & Hierl, S. (2007). Excellence in libraries: A systematic and integrated approach. *New Library World*, 108(11/12), pp. 526-544.
- Huesco, A., & Cascant, J. M. (2012). Metodología y técnicas cuantitativas de investigación. Cuadernos Docentes. Universidad Politécnica de Valencia.
- Kanji, G., Malek, A. and Tambi, B. (1999). Total quality management in UK higher education institutions. *Total Quality Management* 10, pp. 129-153.
- Kaynak, H. (2003). The relationship between total quality management practices and their effects on firm performance. *Journal of Operations Management*, 21(4), pp. 405-435.
- Labovitz G., Chang Y. S. & Rosansky V. (1993). *Making Quality Work: A Leadership Guide for the Results - Driven Manager*. Harper Colling Publishers, U.S.A.
- Law, D.C.S. (2010), "Quality assurance in post-secondary education", *Quality Assurance in Education*, (18)1, pp. 64-77.

- Lewis, W.G., Pun, K.F., & Lalla, T. (2006). Exploring soft versus hard factors for TQM implementation in small and medium-sized enterprises. *International Journal of Productivity and Performance Management*, 55(7), pp. 539-554.
- Loffler E. & Vintar M. (2004). *Improving the Quality of East and West European Public Services*. Ashgate: Bratislava, pp.109.
- Massy, W.F. (2003). *Honoring the trust. Quality and cost containment in higher education*. Bolton: Anker Publishing.
- Manatos, M., Sarrico, C. and Rosa, M. (2015). The integration of quality management in higher education institutions: a systematic literature review. *Total Quality Management & Business Excellence*, 28(1-2), pp.159-175.
- Martínez-Lorente, A., Gómez-Gómez, J. and Martínez-Costa, M. (2009), "An evaluation of the EFQM excellence model", 16th International Annual EUROMA Conference, Göteborg, 14-17 June.
- Mehta, N., Verma, P. and Seth, N. (2014), "Total quality management implementation in engineering education in India: an interpretive structural modelling approach", *Total Quality Management & Business Excellence*, 25(1/2), pp. 124-140.
- Milakovich E.M. (2005). *Management for Quality in Government* *sto Rabin J. (ed.)*. Encyclopedia of Public Administration and Public Policy, Taylor & Francis Group: New York 2005, pp. 744.
- Noe, R. A., Hollenbeck, J.R., Gerhart, B. & Wright, P.M. (2015). *Human Resource Management. Gaining a Competitive Advantage* (9th edition). McGraw-Hill/Irwin, pp. 38.
- Oakland J. S. (1994). *Total Quality Management: The Route to Improving Performance* (2nd ed.). Butterworth Heinemann, Oxford.
- Osseo-Asare, A.E., and Longbottom, D. (2002). The need for education and training in the use of the EFQM model for quality management in UK higher education institutions. *Quality Assurance Education*, 10(1), pp. 26-36.
- Pannirselvam, G. and Ferguson, L. (2001). A study of the relationships between the Baldrige categories. *International Journal of Quality & Reliability Management*, 18(1), pp.14-37.
- Phan, A.C., Abdallah, B.A., & Matsui, Y. (2011). Quality management practices and competitive performance: Empirical evidence from Japanese manufacturing companies. *International Journal of Production Economics*, 133(3), pp. 518-529.
- Prajogo, D., Oke, A. and Olhager, J. (2016). Supply chain processes. *International Journal of Operations & Production Management*, 36(2), pp.220-238.
- Pratasavitskaya, H., & Stensaker, B. (2010). *Quality Management in Higher Education: Towards A Better Understanding of an Emerging Field*. *Quality in Higher Education*, 16(1), pp. 37-50.
- Rosa, M. J. (2003). *Definiçio de Bases Estrategicas e de Excelencia para o Desenvolvimento do Ensino Superior em Portugal*. Universidade de Aveiro, Aveiro.
- Rosa, M. and Amaral, A. (2007). A Self-assessment of Higher Education Institutions from the Perspective of the EFQM Excellence Model. *Higher Education Dynamics*, pp.181207. 10.1007/978-1-4020-6012-0_7.
- Rosa, M., Amaral, A. and Sarrico, C. (2012). *Implementing Quality Management Systems in Higher Education Institutions*. INTECH Open Access Publisher.
- Sadeh, E. and Arumugam, V.C. (2010). Interrelationships among EFQM excellence criteria in iranian industrial SMEs, *European Journal of Economics, Finance and Administrative Sciences*, Vol. 19, pp. 155-167.
- Sadeh, E., Arumugam, V. C., & Malarvizhi, C. A. (2013). Integration of EFQM framework and quality information systems. *Total Quality Management & Business Excellence*, 24(1-2), pp. 188-209.
- Safari, H., Abdollahi, B. and Ghasemi, R. (2012). Canonical correlation analysis between people criterion and people results criterion in EFQM model. *Total Quality Management & Business Excellence*, 23(5-6), pp. 541-555.
- Sahney, S., Banwet, D. K., & Karunes, S. (2004). Onconceptualizing total quality management in higher education. *The TQM Magazine*, 16(2), pp. 145-159.
- Samson, D. and Terziovski, M. (1999), "The relationship between total quality management practices and operational performance", *Journal of Operations Management*, (17)4, pp. 393-409.
- Sarrico, C. S., Rosa, M.J., Teixeira, P.N., & Cardoso, M.F. (2010). Assessing quality and evaluating performance in higher education: words apart or complementary views? *Minerva*, 48(1), pp. 35-54.
- Saunders, M., Lewis, P. and Thornhill, A. (n.d.). *Research methods for business students*. (5th edition), Prentice. Hall.
- Scheele J.P. (2000). *Quality assurance as a European challenge: Quality assurance in higher education after the Bologna declaration, with an emphasis on follow-up Procedures*. Inspector of Higher Education, The Netherlands, *sinergie rapporti di ricerca n. 9/2000*.

- Sherr, L. and Gregory Lozier, G. (1991). Total quality management in higher education. *New Directions for Institutional Research*, 1991(71), pp.3-11.
- Sit, W., Ooi, K.B., Lin, B., & Chong, A.Y.L. (2009). TQM and customer satisfaction in Malaysia's service sector. *Industrial Management & Data Systems*, 109(7), pp. 957-975.
- Suárez, E., Roldán, J. L., & Calvo-Mora, A. (2014). A structural analysis of the EFQM model: An assessment of the mediating role of process management. *Journal of Business Economics and Management*, 15(5), pp. 862-885.
- Suárez, E., Calvo-Mora, A., Roldán, J. and Periañez-Cristóbal, R. (2017). Quantitative research on the EFQM excellence model: A systematic literature review (1991-2015). *European Research on Management and Business Economics*, 23(3), pp. 147-156.
- Sun, H. (1999), "Diffusion and contribution of total quality management - an empirical study in Norway", *Total Quality Management & Business Excellence*, 10(6), pp. 901-914.
- Sun, H. (2000), "Total quality management, ISO 9000 certification and performance improvement", *International Journal of Quality & Reliability Management*, 17(2), pp. 168-179.
- Tari, J.J., Molina, J.F., & Castejo, J.L. (2007). The relationship between quality management practices and their effects on quality outcomes. *European Journal of Operational Research*, 183(2), pp. 483-501.
- Tasopoulou, K. and Tsiotras, G. (2017). Benchmarking towards excellence in higher education. *Benchmarking: An International Journal*, 24(3), pp.617-634.
- Terziovski, M. and Dean, A. (1998). Best predictors of quality performance in Australian service organisations. *Managing Service Quality: An International Journal*, 8(5), pp.359-366.
- Thompson, A., Strickland, A.J. Gamble, J.E., Peteraf, M., Janes, A., Sutton, C. (2013). *Crafting and Executing Strategy - The Quest for Competitive Advantage: Concepts and Cases*. McGraw-Hill/Irwin, pp.396
- Venkatraman, S. (2007). A framework for implementing TQM in higher education programs, *Quality Assurance in Education*, 15(1), pp. 92-112.
- Westlund, A.H. (2001) Measuring environmental impact on society in the EFQM systems, *Total Quality Management*, 12(1), pp. 125-135.
- Williams, G. (1993). Total quality management in higher education: panacea or placebo? *Higher Education*, 25(3), pp. 229-237.
- Wilson, D.D. and Collier, D.A. (2000), "An empirical investigation of the malcolm Baldrige national quality award causal model", *Decision Sciences*, 31(2), pp. 361-390.
- Zabadi, A. (2013). Implementing Total Quality Management (TQM) on the Higher Education Institutions - A Conceptual Model. *Journal of Finance & Economics*, 1(1), pp.42-60.
- Zade, E.A., Safari, H., Abdollahi, B. and Ghasemi, R. (2011), "Canonical correlation analysis between enabler and results in EFQM model; a case study in TAVANIR company in Iran", *European Journal of Social Sciences*, 21(3), pp. 483-492.
- EFQM (2017). Available at: <http://www.efqm.org/> [Accessed 14 December 2017].
- International Organization for Standardization (2017). Available at: <https://www.iso.org/home.html> [Accessed 14 December 2017].